

# **Poseidon 295**

## **Cruise Report**

Dr. Bernd Christiansen

Universität Hamburg

Institut für Hydrobiologie und Fischereiwissenschaft

Zeiseweg 9, D-22765 Hamburg

bchristiansen@uni-hamburg.de

## **Cruise Report R.V. Poseidon, cruise POS 295**

**Lisbon 20.03.03 - Las Palmas 01.04.03**

Dr. Bernd Christiansen, Universität Hamburg

### Scope of the cruise

The cruise was a pilot cruise in the framework of the EU-project OASIS (Oceanic seamounts: an integrated study) which studies the functioning ecology of seamounts in the NE-Atlantic. The research programme during the cruise included measurements of the physical properties of the water column (temperature and salinity), the sampling of particulate organic matter, measurements of primary production and export fluxes and the sampling of zooplankton.

### Cruise narratives

After a delay of 12 hours Poseidon left the port of Lisbon on 20 March. The first station was reached on 22 March. The attempt to recover a Portuguese sound source mooring failed, despite being able to communicate with the release and to trigger it.

Poseidon then sailed to Seine Seamount, where it arrived in the morning of 23 March. First a moored ADCP, which is a device to measure the water flow, was deployed on top of the seamount at a water depth of 181 m. A drifter array measuring the amount of oxygen algae produce, was deployed above the summit and recovered successfully after 24 hours. Unfortunately, the drifter array was lost after the second deployment; despite an extended search the unit could not be found.

Several CTD/rosette casts, measuring temperature and salinity and sampling water for the analysis of organic particles were performed on and around the seamount. This gear was combined with a pump system which filters water for organic particles. Water sampling was also performed for the measurement of dissolved organic carbon, oxygen, and nutrients. The water above the summit appeared to be markedly lower in organic particles and

phytoplankton cells than at the other locations. A multicorer was used twice on the summit of Seine Seamount to sample sediment, which consisted of hard, coarse sand so that the corer penetrated into the sediment only a few centimetres.

A total of eight plankton hauls with the MOCNESS were performed on top of the seamount, at the southern and northern flank and at an oceanic far field station outside the influence of the seamount, reaching to a maximum depth of 1000 metres. The MOCNESS is a multiple plankton net with a total of 6-20 nets which can be opened and closed sequentially at different depths. A first impression of the samples indicates differences between the plankton community on top of the seamount and at the flanks, with much lower total abundance above the summit where the plankton community consisted mainly of small copepods. At the flank stations, very high abundances of small fish and crustaceans were observed at a depth of ca 600 m. Additionally, a multinet with five nets was used to study the fine-scale vertical distribution of plankton above the summit of the seamount.

The DOS (deep observationsystem, a camera sled) proved to be very unreliable, and during the last haul water penetrated into the underwater unit and caused a short cut in the electric system. The unit could not be repaired during the cruise.

The ADCP mooring was recovered successfully at the end of the cruise.

Station work was finished on Sunday, 30 March; then we sailed to Las Palmas where we arrived on 1 April.

Annex1: POS 295: List of participants

1	Christiansen (principal scientist)	Bernd	UHH/IHF
2	Furey	Tom	NUIG
3	Gutierrez Lobato	Carlos	ULPGC
4	Jaeckisch	Nina	UHH/IHF
5	Kiriakoulakis	Kostas	ULIV
6	Martin	Bettina	UHH/IHF
7	Matthiessen	Birte	UHH/IHF
8	Mendonça	Ana	IMAR/DOP
9	Springer	Barbara	URO
10	Vilas Español	Juán Carlos	ULPGC
11	Werk	Stephan	URO

IMAR/DOP: Instituto do Mar/Departamento de Oceanografia e Pescas, Universidade dos Açores, Portugal

NUIG: National University of Ireland, Galway, Ireland

UHH/IHF: Universität Hamburg/Institut für Hydrobiologie und Fischereiwissenschaft, Germany

ULPGC: Universidad de Las Palmas de Gran Canaria, Spain

URO: Universität Rostock, Germany

ULIV: University of Liverpool, UK

## Annex2: List of stations

Station #	Location	Date	Time (local)	Time (UTC)	Latitude °N	Longitude °W	Water depth	Activity
1		22.03.2003	700	0600	36 05.5	011 26.6	4200	recovery sound source mooring
2	A	23.03.2003	500	0400	33 44.5	014 24.5	180	deployment moored ADCP
3	A	23.03.2003	600	0500	33 46.0	014 22.0	180	3 CTD
4	A	23.03.2003	1100	1000	33 46.0	014 22.0	180	deployment primary production drifter
5	A	23.03.2003	1200	1100	33 46.0	014 22.0	180	CTD
6	A	23.03.2003	1600	1500	33 46.0	014 22.0	180	MUC
7	A	23.03.2003	1724-2128	1624-2028	33 48.0	014 22.0	180-193	DOS
8	A	23.03.2003	2205-0100	2105-2400	33 47.7	014 21.3	178-786	MOC
9	F	24.03.2003	500	0400	33 48.0	014 40.0	4000	CTD
10	A	24.03.2003	1300	1200	33 46.0	014 22.0	180	recovery primary production drifter
11	A	24.03.2003	1300-1615	1200-1515	33 48.2	014 21.2	179-1416	MOC
12	A	24.03.2003	1718-2127	1618-2027	33 45.9	014 22.7	173-508	DOS
13	F	25.03.2003	0000-0600	2300-0500	33 48.0	014 40.0	4000	5 CTD
14	F	25.03.2003	0700-0800	0600-0700	33 48.0	014 40.0	4000	deployment primary production drifter
15	E1	25.03.2003	1120-1518	1020-1418	33 44.4	014 08.9	1072-1593	MOC
16	E2	25.03.2003	1600-1700	1500-1600	33 41.1	014 22.4	1500	CTD
17	E	25.03.2003	1900-2400	1800-2300	33 32.0	014 30.0	4000	CTD
18	E1	26.03.2003	0133-0546	0033-0446	33 44.1	014 28.7	1188-1580	MOC
19	F	26.03.2003	0800-1300	0700-1200	33 48.0	014 40.0	4000	recovery primary production drifter
20	A	26.03.2003	1517-1700	1417-1600	33 46.0	014 22.0	173	DOS
21	F	26.03.2003	2000-2400	1900-2300	33 48.0	014 40.0		recovery primary production drifter
22	H	27.03.2003	0500-1000	0400-0900	34 15.0	014 00.0	4000	CTD
23	H	27.03.2003	1000-1400	0900-1300	34 15.0	014 00.0	4000	2 CTD, light attenuation sensor
24	H	27.03.2003	1403-1750	1303-1650	34 14.9	014 00.1	4170-4264	MOC
25	H	27.03.2003	1900-2100	1800-2000	34 15.0	014 00.0	4000	2 CTD
26	H	27.03.2003	2100-2400	2000-2300	34 15.0	014 00.0	4000	SAPS
27	H	28.03.2003	0100-0524	0000-0424	34 16.0	014 01.1	4188-4277	MOC
28	H	28.03.2003	0600-1000	0500-0900	34 15.0	014 00.0	4200	CTD
29	C	28.03.2003	1400-1900	1300-1800	33 45.0	014 03.0	4000	CTD
30	D	28.03.2003	1900-2200	1800-2100	33 36.0	014 12.0	4300	2 CTD

## List of stations continued

31	C1	28.03.2003	0000-0200	2300-0100	33 46.3	014 14.1	1500	CTD
32	D	29.03.2003	0300-0900	0200-0800	33 36.0	014 12.0	4300	2 □ CTD
33	A	29.03.2003	1100-1200	1000-1100	33 46.0	014 22.0	170	MUC
34	F2	29.03.2003	1250-1700	1150-1600	33 50.8	014 26.7	2175-2532	MOC
35	F2	29.03.2003	1700	1600	33 56.5	014 18.5		CTD
36	G	29.03.2003	1900-2400	1800-2300	33 59.0	014 27.7	4000	CTD
37	F2	30.03.2003	0120-0500	0020-0400	33 55.8	014 19.9	2090-2274	MOC
38	F1	30.03.2003	0600-0800	0500-0700	33 46.2	014 30.9	2000	CTD
39	A	30.03.2003	1000-1100	0900-1000	33 46.0	014 22.0	170	MUC
40	A	30.03.2003	0934-1218	0834-1118	33 46.0	014 22.0	170	7 MSN
41	A	30.03.2003	1350-1600	1250-1500	33 46.0	014 22.0	170-660	recovery moored ADCP, 5 MSN

ADCP: acoustic doppler current profiler

CTD: conductivity and temperature probe (with water bottles)

MUC: multiple corer

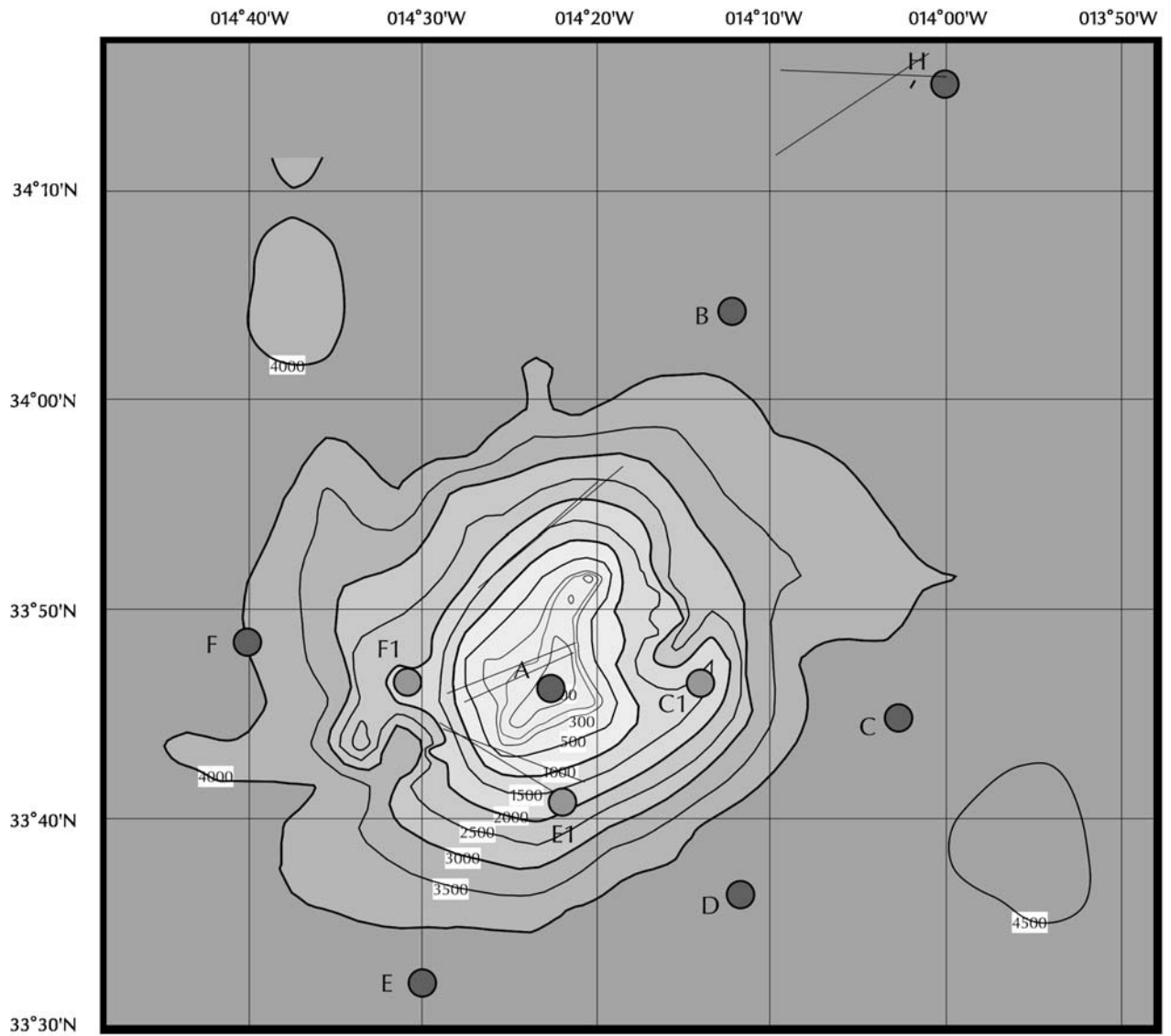
DOS: deep-sea observation system (camera sled)

MOC: MOCNESS, large multiple opening and closing plankton net

SAPS: stand-alone pump system

MSN: multinet, small multiple opening and closing plankton net

### Annex 3: Map of study location



Map of Seine Seamount showing sampling stations and MOCNESS cruise tracks